DOCUMENT RESUME

ED 216 671 IR 009 996

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TITLE MicroSIFT News. October 1980 ((and)) October 1981.
INSTITUTION Northwest Regional Educational Lab., Portland, Oreg.
PUB DATE 81
NOTE 31p.
JOURNAL CIT MicroSIFT News; v1 n1 Oct 1980 v2 n1 Oct 1981

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Computer Assisted Instruction; *Computer Programs; *Consortia; *Evaluation Criteria; *Microcomputers; Networks; Publications; Seminars; *Summative Evaluation; Workshops

ABSTRACT

This document comprises the first two issues of a newsletter published by the Microcomputer Software and Information for Teachers (MicroSIFT) Clearinghouse, which is a project designed to establish effective procedures for the collection, evaluation, and dissemination of materials and information, and develop a flexible user support and technical assistance component. The first issue describes the project, how the network was formed, courseware evaluation procedures, package distribution services, and hardware at the clearinghouse. Workshops and seminars offered by MicroSIFT, four publications on software sources and hardware news, and notes on regional information are also listed. The second issue describes the Evaluator's Guide and evaluation instruments developed by MicroSIFT, gives a bibliography of 28 resources on microcomputer selection, lists the participants in the field testing of the evaluation process, and provides the criteria for evaluating the content and instructional quality of courseware. Evaluations of 12 programs using this process include producer, version, required hardware, techniques, documentation available, instructional objectives, instructional prerequisites, content and structure, potential uses, major strengths, major weaknesses, and evaluation summary. Seven catalogs for educational applications and four for various fields are also listed. (CHC)

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MICROSIFT NEWS

Vol.1 No.1/ October 1980

Vol.2 No.1/ October 1981

Northwest Regional Educational Laboratory

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MicroSIFT NEWS

Northwest Regional Educational Laboratory 500 Lindsay Building • 710 S.W. Second Avenue • Portland, Oregon 97204

Vol.1 No.1/October 1980 Edited by Jerilyn Marler

About MicroSIFT...

MicroSIFT Bio

Development of the Microcomputer Software and Information For Teachers (MicroSIFT) Clearinghouse began in December of 1979 with the support of the National Institute of Education. It is a major project of the Computer Technology Program directed by Dr. Judy Edwards at the Northwest Regional Educational Laboratory (NWREL). Donald Holznagel, Coordinator of MicroSIFT, has been working closely with Dr. Edwards in designing the clearinghousewhich is now moving into its operational phase. The third member of the Computer Technology staff is Jeri Marler, Administrative Secretary for the program.

Dr. Edwards has been Director of the NWREL Computer Technology Program since 1976. Don Holznagel, formerly with TIES in Minnesota, accepted the position of MicroSIFT Coordinator in February 1980. Through their combined endeavors MicroSIFT has become a reality.

"...the computer by itself can never be as effective as a human teacher; an alliance of the two, however, creates a powerful teaching force."

Christine Doerr
Microcomputers and the 3 r's

Purpose of MicroSIFT

Although many projects applying computer technology in education have been funded over the last 10 years, adequate instructional materials are still scare because of a lack of documentation, validation and dissemination. Other obstacles to significant use of computers in education are:

- Lack of skilled personnel to develop materials or train others to use computer-based materials
- Lack of information concerning use of computers in curricular areas
- Technical problems related to hardware/software incompatibility and cost

MicroSIFT was planned in recognition of these obstacles to serve as a clearinghouse for microcomputer K-12 instructional software and information. The major focus of the project is on establishing effective procedures for the collection, evaluation and dissemination of materials and information, and incorporating a flexible user support and technical assistance component.

MicroSIFT is in Operation

MicroSIFT NETWORK FORMED

Much of the MicroSIFT work will be carried out by a Network of organizations and consortia directly involved in using computers in instruction. Their expertise will be put to use in reviewing, documenting, finishing and evaluating programs submitted to MicroSIFT for possible distribution. Initial participants in the Network have a history of development, selection, evaluation and use of instructional computer applications. Their staff have full-time responsibility for instructional computing and supporting the use of microcomputers in their constituent schools. Contractual agreements are being prepared with 17 organizations as initial participants.

Potential member organizations met October 6-7 in Denver, Colorado to discuss the roles, benefits, and activities of the Network. A formal announcement of participants will be made in the next issue of NEWS.

COURSEWARE EVALUATION

In response to the need to identify quality software (well documented and tested packages), MicroSIFT staff are designing an evaluation process. Instruments are currently being devised and procedures being tested for the evaluation of microcomputer-based instructional software and courseware.

Development of this evaluation has been a joint project of MicroSIFT and the NWREL Research on Evaluation Program. Resources such as checklists, questionnaires and guidelines were collected from school districts and consortia to use in the development process. CONDUIT (the higher education clearinghouse for microcomputer-based education materials, located at the University of Iowa) has extensive experience in this field; their advice and input have been instrumental in the formation of the MicroSIFT evaluation package. Pilot tests of the evaluation forms were held with Portland and Beaverton school district teachers in Oregon. A field test version of the evaluation instruments has been developed for use during the 1980-81 school year.

"Learning is a highly individual experience, an active rather than a passive act.... It is increasingly important that students be provided with a variety of instructional resources that incorporate multiple learning styles and modes of interaction. This multiplicity of resources increases the probability of a match between what is available and what the learner is seeking. The computer provides a variety of instructional strategies and delivery modes, and can be a useful and exciting means for expanding learning opportunities."

Richard B. Otte
Education Technology Specialist
National Institute of Education

The evaluation procedure involves four stages:

1. Sifting. An initial judgment is made whether a program or package is suitable for microcomputer use in grades K-12 and is ready for evaluation. Certain fundamental criteria must be met: does it have instructional value (as opposed to strictly recreational), can it be run on a microcomputer with little or no adaptation, etc.

2. Description. Factual information about the program and materials is reviewed; i.e., instructional purpose, technique, package form, documentation available, and so forth.

3. Evaluation. Professional teachers with experience in the program's subject area and stated grade level review the material, test the program, and make judgements concerning its value as an instructional package.

4. In-Depth Evaluation. When a package successfully passes the first three stages and is rated highly enough to warrant further evaluation, instructional effectiveness will be assessed through pre-testing and post-testing, student observation, or other means. An expert in the package's field of study will supervise the In-Depth Evaluation and make a recommendation and/or judgment to MicroSIFT regarding the usefulness of the program.

The evaluation process will be supplemented by an Evaluator's Guide, now in development. It will be used in training and as a reference for evaluators to help them achieve accuracy and consistency of procedures and judgments.

During the 1980-81 school year this evaluation process will be field tested by Network members using educational packages submitted to MicroSIFT.

PACKAGE DISTRIBUTION

MicroSIFT will facilitate dissemination and distribution of evaluated instructional packages in a variety of ways. Services available through NWREL MicroSIFT include:

- Developing and publishing guidelines for authors and exemplary instructional packages
- "Product finishing" to bring packages up to publishable standards
- Conducting a publisher's search
- Establishing criteria for publisher selection
- Reviewing publisher's proposals and making recommomendations

The first set of completed package reviews is projected for spring 1981. Information regarding the reviews will be made available through this newsletter.

HARDWARE ON HAND

MicroSIFT currently has the use of three microcomputers: Apple II Plus, Atari 800, and TRS-80, on loan from the vendors. Peripheral equipment includes the Apple II Plus dual disk drive, 48K RAM language board; the Atari 800 (40K) disk drive and printer; and the TRS-80 dual disk drive and printer. A graphics tablet provided by the Apple Computer Company makes the development of graphics an easy task.

A Sony Trinitron Color TV provides a beautiful means of demonstrating educational software and exhibiting the color/graphics/sound capabilities of micros. Other micro brands will be added in the future to assist MicroSIFT in its function as a clearinghouse for microcomputer-based educational materials.

NOTE: CHANGE OF ADDRESS

The Northwest Regional Educational Laboratory is preparing to move to a newly constructed building. The projected moving date is December 1. Please make a note of the new address:

300 S.W. Sixth Avenue
Portland, Oregon 97204

Workshops/Seminars

COMPUTER TECHNOLOGY PROGRAM BROWN BAG SEMINARS

Monthly "brown baggers" are held in the Laboratory for people interested in the various aspects of computers in education. There is no charge, nor is a seating reservation required (although we would appreciate a note or phone call if you plan to attend). If you will be traveling to NWREL for a seminar, it might be a good idea to check a day or two ahead for last-minute cancellations. Bring your lunch (we'll supply the coffee) and enjoy an informative session. Seminars are from 11 am to 1 pm, 7th Floor Board Room, 710 S.W. Second Avenue, Portland, Oregon, 503/248-6892.

- "State-of-the-Art in Instructional Systems Design" October 29, 1980
- "State-of-the-Art in Instructional Management Design" November 26, 1980
- "Hardware Selection" December 15, 1980

Other topics not yet scheduled are:

- Library and Media Center Applications of Micros
- Micro Applications for School Administrators
- Deciding When To Use a Micro--and When Not To

Future "brown baggers" will be announced through NEWS.

INTENSIVE ALL-DAY SEMINARS

If interest warrants, intensive all-day seminars will be held at the Lab or regionally within states. Topics for this closer, in-depth look at computers in education will be identified at the "brown baggers".

AROUND THE COUNTRY

Attached is a list of upcoming conferences and workshops around the country. If you know of a workshop, seminar, conference, etc. in your area, please let us know. We will greatly appreciate it.

Publications

The following list of publications, software sources and hardware news is compiled from notices received by the Computer Technology Program. These materials have not necessarily been reviewed for quality by the program staff.

- Datapro Digest: All About Personal Computers $25
  Compares 15 of the most popular microcomputer systems, plus directories of 497 software package vendors and 448 peripheral manufacturers. Soft cover.
  Datapro Research Corporation
  1805 Underwood Blvd
  Delran, NJ 08075
  609/764-0100

- International Directory of Software 1980-81 $140
  Lists over 3,000 software products on 1,105 pages. Hard cover book.
  CUYB Publications, Inc.
  First Federal Bldg, Suite 401
  Pottstown, PA 19464
  215/326-5188

- A Look into Computer Careers
  A 16-page pamphlet "designed to help you explore the potential of a computing career".
  American Federation of Information Processing Societies
  1815 North Lynn Street, Suite 800
  Arlington, VA 22209
  703/558-3600

- A 4-page MicroSIFT brochure is under development and will be available soon. We will be glad to provide copies for distribution at workshops, seminars, conferences, etc.

Notes from the Region

REGIONAL INFORMATION

In the future information regarding conferences, trends, developments in CAI, etc. from each state in the region will be featured. Members of MicroSIFT's Regional Users Advisory Board have agreed to serve as "field correspondents" for the NEWS and to keep us posted on the happenings in their states.

Montana

The Montana Council of Teachers of Mathematics (MCTM) Board of Directors submitted five recommendations concerning K-12 Computer Science to: a) chairs of Montana Computer Science Departments, b) faculty of Montana Math Education Departments, and c) chairs of Montana Education Departments.

1. Because many high school students are receiving one or two semesters in computer programming, it is recommended that testing and counseling be set up to protect such students from needless duplication when attending college.
2. Those students with high school exposure to programming may benefit by becoming familiar with their college's computing configuration. It is recommended that each college/university offer a one-credit (quarter) course which addresses the needs of such students. The course should focus on familiarizing the student with campus hardware with a secondary objective of reviewing programming skills.
3. Waiver of required programming skill courses should be considered, as well as substituting higher level programming courses for the usual course work.
4. Colleges/universities should offer a one-credit course in computer literacy for all students regardless of major. All prospective teachers should have this course, also.
5. Problems facing Montana Computer Science teachers are:
   - There is little or no teacher training.
   - Those who teach beginning programming are not prepared to teach advanced levels, though students request it. They need help via in-service education.
   - Pre-college Computer Science teachers will need in-service training regarding software, hardware, language choice, teaching methods, etc.

BEST COPY AVAILABLE

Oregon

Jack Hopper and Gary Tobey of the Portland Public School District previewed the video tape series, "Little Computers...See How They Run," which was produced by Electronic Data Systems. Here are their remarks:

"Much of the information presented was quite technical, and was covered well, but very quickly.

"We feel that the tapes would be most useful in one of the following areas:

1. As a review or refresher for someone who is already knowledgeable in computer technology.
2. As in-service for teachers and administrators who want to get an overview and feel for what comouters are all about. They could then use other resources for additional study, if desired.
3. For classroom use for older students as an advance organizer to be followed up by detailed instruction, then again after the instruction for followup and reinforcement."

If you are interested in this video tape series, contact Electronic Data Systems, EDS Center, 7171 Forest Lane, Dallas, Texas 75230.

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WORKSHOP/SEMINAR SCHEDULE

NOTE: Please DO NOT contact MicroSIFT for further information.

DATE: November 10 - 21, 1980
WHAT: Basic Data Communications Course (B-1)
WHERE: McGraw Hill World Headquarters, New York City
FEE: Tuition $1,075.00, plus a non-refundable registration fee of $25.
CONTACT: Data Communications Institute, McGraw-Hill Conference & Exposition Center, Room 3677; 1221 Avenue of the Americas, New York, New York 10021; phone (212) 997-4930

DATE: November 17 - 21, 1980
WHAT: Data Base Concepts and Design
WHERE: San Francisco (no other information available at this time)
FEE: Unknown
CONTACT: American Management Association, 135 West 50th Street, New York, New York 10020, phone (212) 586-8100

DATE: November 18 - 19, 1980
WHAT: Interactive Videodisc and Media Storage in Education and Job Training
WHERE: Howard Johnson's National Airport, 2650 Jefferson Davis Highway, Arlington, Virginia 22202, phone (703) 684-7200
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

DATE: November 20 - 21, 1980
WHAT: Fourth Western Educational Computing Conference
WHERE: Kona Kai Club, Shelter Island, San Diego, California
FEE: Unknown
CONTACT: Hal Roach, Manager of Computer Services, Mt. San Antonio College, 1110 N. Grand Avenue, Walnut, California 91789

DATE: November 20 - 21, 1980
WHAT: Microcomputers in Education and Training
WHERE: Howard Johnson's National Airport, 2650 Jefferson Davis Highway, Arlington, Virginia 22202, phone, (703) 684-7200
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

DATE: November 21 - 22, 1980
WHAT: Microcomputers in the Classroom (a regional conference)
WHERE: Wichita State University
FEE: Unknown
CONTACT: Richard Cornelius, Department of Chemistry, Wichita State Univ., Wichita, Kansas 67208, phone (316) 689-3120

DATE: December 3 - 4, 1980
WHAT: Instructional Systems Design
WHERE: Howard Johnson's National Airport, 2650 Jefferson Davis Highway, Arlington, Virginia 22202, phone (703) 684-7200
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

DATE: December 8 - 12, 1980
WHAT: Data Base Concepts and Design
WHERE: St. Perersburg, Florida (no other information available at this time)
FEE: Unknown
CONTACT: American Management Association, 135 West 50 Street, New York, New York 10020, phone (212) 586-8100

DATE: December 16 - 17, 1980
WHAT: Interactive Videodisk and Media Storage in Education and Job Training
WHERE: Holiday Inn North, Newark International Airport, 160 Holiday Plaza, Newark, New Jersey 07114, phone (201) 589-1000
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

DATE: December 18 - 19, 1980
WHAT: Microcomputers in Education and Training
WHERE: Holiday Inn North, Newark International Airport, 160 Holiday Plaza, Newark, New Jersey 07114, phone (201) 589-1000
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

DATE: January 15 - 16, 1981
WHAT: Instructional Systems Design
WHERE: Howard Johnson's National Airport, 2650 Jefferson Davis Highway, Arlington, Virginia 22202, phone (703) 684-7200
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

DATE: January 20 - 21, 1981
WHAT: Interactive Videodisc and Media Storage in Education and Job Training
WHERE: Sheraton Orlando International Airport, 3835 Beeline Expressway, Orlando, Florida 32809, phone (305) 859-2711
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

DATE: January 22 - 23, 1981
WHAT: Microcomputers in Education and Training
WHERE: Sheraton Orlando International Airport, 3835 Beeline Expressway, Orlando, Florida 32809
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

DATE: February 25 - 26, 1981
WHAT: Instructional Systems Design
WHERE: Howard Johnson's National Airport, 2650 Jefferson Davis Highway, Arlington, Virginia 22202
FEE: $375 prior to start, $395 if invoiced
CONTACT: Learning Technology Institute, 50 Culpeper Street, Warrenton, Virginia 22186

Association for Educational Data Systems Workshops

CONTACT: AEDS Workshops, 1201 16th St., N.W., Washington, D.C. 20036

DATE: January 14 - 15, 1981
WHAT: Instructional Uses of Microcomputers
WHERE: Cincinnati, Ohio
FEE: Unknown

DATE: January 15 - 16, 1981
WHAT: Individual Education Programming
WHERE: Washington, D.C.
FEE: Unknown

DATE: February 12 - 13, 1981 - Orlando, Florida
March 12 - 13, 1981 - St. Louis, Missouri
WHAT: Micro-Mini Computers, Personal Computers, & the Development and Evaluation of Educational Programs in Computer Science and Date Processing
WHERE: See above
FEE: Unknown

DATE: March
WHAT: Planning and Support for Educational Computing
WHERE: Scottsdale, Arizona
FEE: Unknown

WHAT YOU WILL FIND IN THIS ISSUE:

- MicroSIFT Clearinghouse description and information
- Notes from the Region
- Workshop/Seminar information
- Publications worth looking for

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MicroSIFT NEWS

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MicroSIFT Update

The last word many of you had from us was our October 1980 issue of MicroSIFT NEWS. Quiet we may have been, but certainly not idle.

Evaluator's Guide and Reviews

We have completed a pilot test and a field test of the Evaluator's Guide and evaluation instruments. This involved organizing 10 Evaluation Network sites, providing them with Guides and forms, and selecting the software to be reviewed. The site coordinators located teachers within their jurisdiction to use the Guide, review the software, and evaluate the process. The Evaluator's Guide and forms have been revised based on participants' feedback. The Guide provides background information and forms to aid teachers and other educators in evaluating educational software and courseware.

This Newsletter includes the first set of published reviews completed by Network site reviewers. Subsequent reviews will be completed using the revised Guide and forms.

Courseware reviews will be made available through a variety of print sources. ERIC will receive all reviews as they are completed, as will a number of other dissemination sources. The International Council on Computers in Education (ICCE) will also publish reviews. Their address is ICCE, Department of Computing and Information Sciences, University of Oregon, Eugene, OR 97403.

The Evaluator's Guide is not available from this office. It has been entered into the ERIC (Educational Resources Information Center) system and will be announced in the January or February 1982 issue of Resources in Education, the monthly index to materials in the ERIC system.

When it is announced, you will be able to identify it by its "ED number," and request it from any collection of ERIC microfiche at university libraries, state departments of education, and some public libraries.

If you wish to purchase your own copy of it in either the paper or microfiche edition, use the form at the back of any issue of Resources in Education for obtaining it from the Education Document Reproduction Service.

Next Year

Next year MicroSIFT will continue to coordinate the courseware review process, and will expand the evaluation model to include criteria for administrative applications. Through the MicroSIFT Network we will develop and disseminate a series of Reports to Decision Makers on topics including:

Microcomputers in School Administration
Long-Range Planning and Support
Computer Literacy
Courseware Selection

Another priority for next year is the MicroSIFT courseware information database, called RICE: Resources in Computer Education, which will be made accessible to users around the country.

List of Catalogues

There is a proliferation of software/courseware catalogues available from a variety of sources. We have compiled a list (page 18) of the most widely circulated catalogues and how to obtain them. We hope this will help you locate quality materials for your classrooms.

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Letters! Letters!

The surprising volume of mail we receive every day precludes the possibility of our answering each letter, even when it contains a specific request. We will, however, continue to respond to questions and needs through articles in trade journals such as The Computing Teacher, and through the distribution of courseware reviews.

We appreciate your support and tremendous interest in MicroSIFT and will do our best to keep everyone informed of our activities.

Selecting a Microcomputer

A frequent question to MicroSIFT is some version of the following: "We have ($500, $1,000, $2,000) left in (Title IV, Gifted and Talented, Special Education). Which microcomputer should we buy?" The question is reasonable, but the response is not simple. Hardware selection should be based on a degree of planning, needs analysis, and knowledge of District/School goals and objectives. At the risk of overcomplicating the process, we are providing a bibliography of selected recent references on the topic of Selecting a Microcomputer.

Bibliography of Resources

Datapro's survey of personal, desktop and microcomputer systems. Computerworld Magazine May 18, 1981.

Microcomputer buying guide. Media & Methods Magazine, Vol. 18, No. 3, November 1981.

So you want to buy a computer? Instructor Magazine, Vol 89, No. 8, March 1980.

The Computer shopping guide. Instructor Magazine, Vol 89, March 1980.

Potential and limits of computers in schools. Educational Leadership, Vol. 37, No. 6, March 1980

Checklist/Guide to selecting a small computer. Wilma E. Bennett. Pilot Industries, Inc., 347 Fifth Avenue, New York 10016; 1980.

The Computing Teacher. Vol. 8, No. 1, Computing Center, Eastern Oregon State College, La Grande, OR 97850 ($2.00).

Some bases for choosing a computer system: suggestions for educators. J. Educational Technology Systems, Vol. 8, No. 1, Baywood Publishing Co., Inc., 1979-80.

How to make the right decisions about microcomputers. Instructional Innovator, September 1980.

Let the buyer compare. Fox, Tom. Interface Age, Vol. 6, No. 1, January 1981.

Computer selection handbook. Decision resources. Interface Age, Vol. 6, No. 2, February, 1981.

Guide to small computers. Barden, William. Creative Computing, Vol. 6, No. 2, February, 1981.

Buying a computer by R.F.P (request for proposal). Cortesi, David. Interface Age., Vol. 6, No. 3, March, 1981.

Purchasing a microcomputer. Temkin, Kenneth. Classroom Computer News, Vol. 1. No. 4, March, 1981.

Some thoughts on buying a computer, Fox, Tom. Interface Age, Vol. 6, No. 3, March, 1981.

Shopping for Technology. Electronic Learning, Vol. 1, No. 1, Sept./Oct. 1981.

Frederich, Franz J. Guide to Microcomputers Association for Educational Communications and Technology, Washington, D.C. 1980.

Consumer's guide to personal computing and microcomputers. Gray, Stephen. Creative Computing, Vol. 7, No. 5, May, 1981.

Problem areas in computer purchases. Maclennan, Elliott. Interface Age, Vol. 6, No. 4, April, 1981.

Microshopper: The new computers. Smolin, Rocky. Interface Age, Vol. 6, No. 6, June, 1981.

80 Microcomputing's buyers guide to printers. 80 Microcomputing, No. 18, June, 1981.

Micro resource update. Dial, William. Micro, No. 37, June, 1981.

Computer-purchase prelims: Helpful hints from computer retailers. White, Rene. Infoworld, Vol. 3, No. 8.

Buyer's guide to used computers. D'Zamba, Deanna. Infoworld, Vol. 3, No. 7.

Match your new computer to your needs. Poppelbaum, T. L. On Computing, Vol. 3, No. 1, Summer, 1981.

Selecting a microcomputer: It's more than the hardware. Sturdivant, Patricia and Finkel, LeRoy. Classroom Computer News, Vol. 1, No. 6, July-August, 1981.

How to select a personal computer. Thornburg, David D. Recreational Computing, Vol. 10, No. 1, Issue 52, July/Aug 1981.

Buyer's guide to personal computers, video and electronic games, and consumer electronics. Creative Computing, Vol. 7, No. 9, September, 1981.

Courseware Reviews

The reviews included in this newsletter are a result of the field test of the MicroSIFT evaluation process in the Spring of 1981. Many people were involved in this effort; they have provided an important experiential base for improving the instruments and instructional process. The reviews should be read with the following information governing your interpretation:

1. The reviews are the result of professional opinions based on experience, and are not necessarily based on observation of student use of the packages although certain evaluations did include such use. When it was possible to involve students, it was noted in the evaluation. Also, a package may be evaluated at a point in the school year not in conjunction with the time the topic was studied.

2. Each review is a composite summary of the evaluations of at least two teachers who have experience at the subject and level of the material, and one person having broad experience with microcomputer software, hardware and instructional applications. In the field test, some packages were evaluated in several different states.

3. The following information is included in each review:

   Package Description: producer, version, grade level, subject, medium of transfer, required hardware and software, instructional techniques, objectives, and prerequisites, available documentation, content and structure, potential uses, and major stengths and weaknesses.

Evaluation Summary: ratings based on the content, instructional and technical quality of the program. An abbreviated version of the Evaluator's Guide courseware evaluation form appears in each review. Specific information about each item may be found in the Evaluator's Guide.

MicroSIFT is grateful to the following people who participated in the field test, either by assisting with coordination of the review process, completing a courseware review using MicroSIFT instruments, or providing a summary review.

San Mateo Educational Resource Center, California

Leroy Finkel
Pat Tubbs
Gerry Sipes
Sophia White
Bobby Goodson
Richard Pugh
Sandy Bove
Eugene Worthington
Mary Liontre
Ann Lathrop

Minnesota School Districts Data Processing Joint Board

Jim Sydow
Sue Talley

Minnesota Educational Computing Consortium

Barbara Mewaldt
Karen Jostad
Elmer Mattila
Marge Kosel
Ken Brumbaugh

North Clackamas School District, Oregon

Ron Beaulieu
Jerry Larer

Institute for Educational Research, Chicago, Illinois

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William Witt
D. Witt
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Eric Vann
Sandy Cunningham

Linn-Benton Education Service District, Albany, Oregon

Dave Moore
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Region IV Educational Service Center, Houston, Texas

Martha Wong
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Kathy Herring
Sue Wilson
R.D. Thomas
Michelle Davis
Morris Gelber
Lila Macaluso
Kathryn Thompson
Verna Mair
Janette Van Gossen
Virginia Gillespie
Shirley Schubert
Betty Von Maszewski
Pat Sturdivant

Jefferson County Public Schools, Colorado

Jim Tulley
Gene Collins

Technical Education Resource Center, Cambridge, Massachusetts

Tim Barclay

Region X Educational Service Center, Dallas, Texas

Robbie Plummer
Colleen Walsh

Criteria for Evaluation

The following criteria were applied by reviewers in evaluating courseware. Reviewers were asked to indicate agreement or disagreement (or strong agreement/disagreement) with each of the following statements:

CONTENT

1. The content is accurate.
2. The content has educational value.
3. The content is free of race, ethnic, sex, and other stereotypes.

INSTRUCTIONAL QUALITY

4. The purpose of the package is well-defined.
5. The package achieves its defined purpose.
6. Presentation of content is clear and logical.
7. The level of difficulty is appropriate for the target audience.
8. Graphics/color/sound are used for appropriate instructional reasons.
9. Use of the package is motivational.
10. The package effectively stimulates student creativity.
11. Feedback on student responses is effectively employed.
12. The learner controls the rate and sequence of presentation and review.
13. Instruction is integrated with previous student experience.
14. Learning is generalizable to an appropriate range of situations.
15. The user support materials are comprehensive.
16. The user support materials are effective.
17. Information displays are effective.
18. Intended users can easily and independently operate the program.
19. Teachers can easily employ the package.
20. The program appropriately uses relevant computer capabilities.
21. The program is reliable in normal use.

Reviewers were asked to check one of the following:

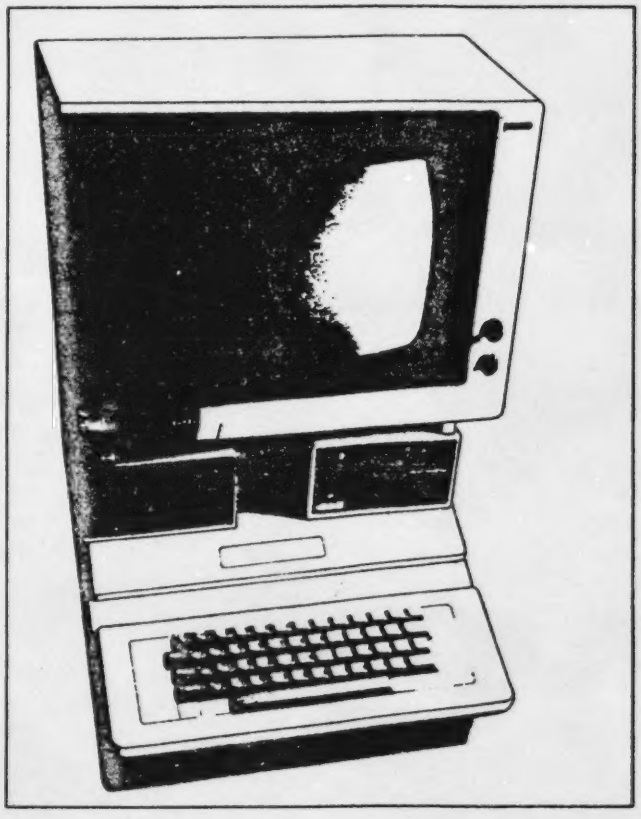
____ I would use or recommend use of this package with little or no change.

____ I would use or recommend use of this package only if certain changes were made.

____ I would not use or recommend this package.

Finally, reviewers were asked to:

- describe the potential use of the package in classroom settings
- describe major strengths of the package
- describe major weaknesses of the package



Library Skills: What's There and How to Find It

Program Description

PRODUCER: Micro Power and Light Company VERSION: Apple II GRADE: 4+ SUBJECT: Library Skills: Identifying and locating fiction, non-fiction, biography; using Dewey numbers, card catalogue, reference books MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II with at least 32K RAM, Applesoft in ROM, a single disk drive, color monitor. REQUIRED SOFTWARE: Applesoft Basic INSTRUCTIONAL TECHNIQUES: Drill and Practice, tutorial DOCUMENTATION AVAILABLE: suggested grade/ability level, instructional objectives, program operating instructions, post-test

INSTRUCTIONAL OBJECTIVES: At the completion of the program, students will be able to: identity and locate fiction, non-fiction and biographies, use the Dewey Decimal System to locate non-fiction books, use the card catalogue to locate books, and know how to locate and use reference books.

INSTRUCTIONAL PREREQUISITES: To use the program successfully, students will need to: know the computer keyboard and the Yes and No commands, be able to read at fifth grade level, be able to learn from a minimal amount of information and practical exercises, and have had prior exposure to a library.

CONTENT AND STRUCTURE: the program is organized into three sections. Part I is a series of text displays telling the student what the computer will do and how and when to respond. This introductory section also defines a library in terms of the kinds of materials most commonly found in modern collections. Part II allows the student to choose among four skills: identifying fiction, non-fiction, and biography; learning how books are arranged; using the Dewey Decimal System and the card catalogue to locate books; and using reference materials. Each skill section begins with an objective, a definition and example(s). This is followed by a short series of drill and practice exercises. Students may set their own pace and ask for help from a "First Aid Station." Part III is a brief final drill on all of the skills.

POTENTIAL USES: The program may be used as a supplementary exercise in a school library skills program, or as a means of assessing a student's skill level prior to instruction.

MAJOR STRENGTHS: The program is cheerful, student paced and uses color graphics appropriately. The operating instructions are well stated and available when needed.

MAJOR WEAKNESSES: The program has spelling and factual errors and provides only minimal tutorial assistance to students. The instructional quality of the program is shallow and incomplete and allows students to go through it giving wrong answers and receive a passing grade. Practice exercises are too short, definitions vague and/or misleading, the reteaching is repetition of past presentations, and documentation is nearly nonexistent. Students are allowed to choose among the skills at random, however, the tutorials and exercises are designed sequentially. The vocabulary level is too difficult for fourth graders.

Evaluation Summary

D	Content accuracy	A	Appropriate motivational level	SD	Program comprehensiveness
D	Educational value	NA	Challenges student creativity	SD	Adequate packaging
SA	Lacks cultural stereotyping	D	Feedback effectively employed	D	Effective information displays
A	Objectives well-defined	A	Student controls presentation of format	SD	Clarity of instructions
SD	Accomplishes stated objectives			SD	Teacher facility with program
D	Clarity of content presentation	SD	Appropriate integration with prior learning	A	Appropriate use of computer technology
D	Appropriate difficulty level				
A	Appropriate graphics/sound/color	D	Content can be generalized	A	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would not use this package (Note Major Weaknesses).

Northwest Regional Educational Laboratory
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Limits of Sequences

Program Description

PRODUCER: Math Software VERSION: © 1980 GRADES: 11-14 SUBJECT: Mathematics: Graphical representation of limits of sequences MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II or Apple II plus with Applesoft Firmware using a disk drive with a minimum of 32K of memory. REQUIRED SOFTWARE: Dos 3.2 or Dos 3.3 with Basics diskette INSTRUCTIONAL TECHNIQUES: Simulation, Demontration DOCUMENTATION AVAILABLE: Suggested grade level, program operating instructions, description

INSTRUCTIONAL OBJECTIVES: To demonstrate graphically a sequence; to demonstrate the definition Lim a(n) = L; $n \rightarrow \infty$, to demonstrate the neighborhood definition of limits in general and sequences in particular; and to demonstrate the concept of convergence of a sequence.

INSTRUCTIONAL PREREQUISITES: The program assumes the students know the definition of a sequence from a functional point of view, theoretically understand the limit concept as applied to sequences, be knowledgeable about the various sequences provided in the menu and the notation used within these sequences, and understand two dimensional graphing.

CONTENT AND STRUCTURE: The program graphically displays approximately fifty-five terms of a sequence. First, the epsilon neighborhood of the limit is drawn with the value of epsilon. The threshold value, M, is then computed and printed. This provides a graphic interpretation of the definition of limit of sequences which shows that the nth sequence terms are within the epsilon neighborhood of the limit when $n > M$. The five menu selections enable the user to choose a suggested sequence or to specify his/her own sequence choice.

POTENTIAL USES: The program may be used effectively in a classroom setting as an introduction to a unit on limits. It can provide a meaningful tool to expand and enhance students comprehension of sequences and their limits.

MAJOR STRENGTHS: None cited.
MAJOR WEAKNESSES: The formula disappears from the final graph.

Evaluation Summary

A	Content accuracy	A	Appropriate motivational level	A	Program comprehensiveness
A	Educational value	A	Challenges student creativity	A	Adequate packaging
NA	Lacks cultural stereotyping	NA	Feedback effectively employed	D	Effective information displays
A	Objectives well-defined	A	Student controls presentation of format	NA	Clarity of instructions
A	Accomplishes stated objectives			A	Teacher facility with program
A	Clarity of content presentation	A	Appropriate integration with prior learning	A	Appropriate use of computer technology
A	Appropriate difficulty level				
SA	Appropriate graphics/sound/color	A	Content can be generalized	A	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of package with little or no change.

Limacons and Their Areas

Program Description

PRODUCER: Math Software VERSION: © 1980 GRADES: 11-14 SUBJECT: Mathematics: Graphs of Limacons with area approximations MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II or Apple II Plus with Applesoft firmware using a disk drive and a minimum of 32K of memory REQUIRED SOFTWARE: Dos 3.2 or Dos 3.3 with Basics diskette INSTRUCTIONAL TECHNIQUES: Simulation, Demonstration DOCUMENTATION AVAILABLE: Suggested grade level, program operating instructions, description

INSTRUCTIONAL OBJECTIVES: To demonstrate the curves formed by r=A+B cos(t) and r=A+B sin(t); to demonstrate graphically the effects of changing A and B in these equations; to define and show by example the family of curves known as limacons; to reinforce polar graphing techniques; and to describe areas of polar curves from a sector summation approach

INSTRUCTIONAL PREREQUISITES: The program assumes that students understand polar coordinates, polar graphing techniques, radian measure of angles, and the functions sine(t), cos(t) and their graphs.

CONTENT AND STRUCTURE: The program consists of three parts. The first section describes limacons whose equations are r=a+b (sin)t or r=a+b cos(t). The effects of changing the values of a and b are described in written form and also shown graphically. The effects of using the sine function or the cosine function are also shown. The second section allows students to choose the values of a and b and cosine or sine. The program then graphs the limacon on the hi-resolution screen. The third section allows students to calculate various areas enclosed by the limacon. The program will give an approximate value of this area.

POTENTIAL USES: The program may be used effectively in a classroom setting to demonstrate graphs of limacons.

MAJOR STRENGTHS: The program provides a good demonstration and reinforcement of polar graphing techniques.

MAJOR WEAKNESSES: None cited.

Evaluation Summary

A	Content accuracy	A	Appropriate motivational level	A	Program comprehensiveness
A	Educational value	A	Challenges student creativity	A	Adequate packaging
NA	Lacks cultural stereotyping	A	Feedback effectively employed	A	Effective information displays
A	Objectives well-defined	A	Student controls presentation of format	A	Clarity of instructions
A	Accomplishes stated objectives			A	Teacher facility with program
A	Clarity of content presentation	A	Appropriate integration with prior learning	A	Appropriate use of computer technology
A	Appropriate difficulty level				
A	Appropriate graphics/sound/color	A	Content can be generalized	A	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of package with little or no change.

Function Grapher

Program Description

PRODUCER: Math Software VERSION: © 1980 GRADES: 8-14 SUBJECT: Mathematics: Graphs, most functions, and their inverses MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRE HARDWARE: Apple II or Apple II Plus with Applesoft Firmware using a disk drive with a 48K memory REQUIRED SOFTWARE: Dos 3.2 or Dos 3.3 with Basics diskette INSTRUCTIONAL TECHNIQUES: Simulation, Problem Solving, Demonstration DOCUMENTATION AVAILABLE: Suggested grade level, program operating instructions, description

INSTRUCTIONAL OBJECTIVES: To be able to draw the graph of any function under discussion including polynomial, trigonometric, logarithmic and exponential; to demonstrate the graphing of functions which have discontinuities; to provide an alternative to chalk and blackboard or overhead projector drawing of graphs; to provide reinforcement of ordered pairs and their relationships to graphs; and to allow for more than one function to be graphed on the same set of axes in order to explore intrinsic relationships between the graphs.

INSTRUCTIONAL PREREQUISITES: The program assumes that students understand the definition of a function both in formula, ordered pair, and graphical forms. Students should also be knowledgeable about two dimensional graphing.

CONTENT AND STRUCTURE: The opening menu offers students the choice of circular (trig) functions, absolute value functions, greatest integer functions, polynomial functions, or student-supplied functions. Once inside the circular function category, students may select either sine, cosine, tangent, cotangent, secant, cosecant, or choose to supply their own circular function. If a student selects the polynomial function category s/he is offered the choice of linear, quadratic, cubic, or quartic function or the opportunity to supply a special function. Regardless of the category, once a specific function has been selected students supply each coefficient. To enable an investigation of the role of the coefficients, students may also elect to have the computer graph a second function on the same set of axes.

POTENTIAL USES: The program may be used effectively in a classroom setting to demonstrate the graphing of most functions and their inverses.

MAJOR STRENGTHS: The program is very effective in stimulating student creativity.

MAJOR WEAKNESSES: None cited.

Evaluation Summary

A	Content accuracy	SA	Appropriate motivational level	A	Program comprehensiveness
SA	Educational value	SA	Challenges student creativity	A	Adequate packaging
NA	Lacks cultural stereotyping	NA	Feedback effectively employed	SA	Effective information displays
A	Objectives well-defined	A	Student controls presentation of format	A	Clarity of instructions
A	Accomplishes stated objectives			A	Teacher facility with program
A	Clarity of content presentation	A	Appropriate integration with prior learning	D	Appropriate use of computer technology
A	Appropriate difficulty level				
A	Appropriate graphics/sound/color	A	Content can be generalized	A	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of package with little or no change.

Binomial Multiplication

Program Description

PRODUCER: Math Software VERSION: © 1980 GRADES: 8-12 SUBJECT: Mathematics: Graphical presentation of binomial multiplication MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II or Apple II Plus with Applesoft Firmware using a disk drive with a minimum of 32K of memory REQUIRED SOFTWARE: Dos 3.2 or Dos 3.3 with Basics diskette INSTUCTIONAL TECHNIQUES: Simulation, Demonstration DOCUMENTATION AVAILABLE: Suggested grade level, program operating instructions, description

INSTRUCTIONAL OBJECTIVES: To demonstrate that the product of two binomials is a valid process; to show that binomial multiplication has a relationship to the areas of rectangular geometric regions; to demonstrate the effect that negative values for A and B have on the geometric area analog; and to demonstrate a unique approach to considering binomial multiplication.

INSTRUCTIONAL PREREQUISITES: The program assumes that students are familiar with multiplying monomials, know the distributive property, and understand the concept of area as it relates to the rectangle. Students should also have had algebraic practice in binomial multiplication.

CONTENT AND STRUCTURE: This program demonstrates that $(X+A)(X+B)=X^2+AX+BX+AB$ is a true equation. Students may input any value of "A" or "B" from -5 to 5 inclusive. Using graphics, the equivalence of the right and left hand sides of the equation is shown through the use of areas.

POTENTIAL USES: The program may be used effectively in a classroom setting to demonstrate a unique approach to understanding binomial multiplication.

MAJOR STRENGTHS: The program provides a good demonstration of binomial multiplication.

MAJOR WEAKNESSES: Information displays disappear before students have time to digest them.

Evaluation Summary

A	Content accuracy	A	Appropriate motivational level	A	Program comprehensiveness
A	Educational value	A	Challenges student creativity	A	Adequate packaging
NA	Lacks cultural stereotyping	A	Feedback effectively employed	D	Effective information displays
A	Objectives well-defined	D	Student controls presentation of format	A	Clarity of instructions
A	Accomplishes stated objectives			A	Teacher facility with program
A	Clarity of content presentation	A	Appropriate integration with prior learning	A	Appropriate use of computer technology
A	Appropriate difficulty level				
A	Appropriate graphics/sound/color	A	Content can be generalized	A	Program reliability

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Evaluators indicate they would use or recommend use of package with little or no change.

Arithmetic Racing

Program Description

PRODUCER: Math Software VERSION: © 1980 GRADES: 4-11 SUBJECT: Mathematics: Speed and accuracy drill of arithmetic operations MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II or Apple II Plus with Applesoft Firmware using a disk drive with 32K of memory REQUIRED SOFTWARE: Dos 3.2 or Dos 3.3 with Basics diskette INSTRUCTIONAL TECHNIQUES: Game, Problem Solving, Drill and Practice DOCUMENTATION AVAILABLE: Suggested grade level, program operating instructions, demonstration

INSTRUCTIONAL OBJECTIVES: To improve students' arithmetic skills in addition, multiplication, subtraction, and division; to provide an interesting interactive environment for remediation work in arithmetic facts, and to develop speed and accuracy in working basic arithmetic operations.

INSTRUCTIONAL PREREQUISITES: The program assumes that students know basic arithmetic facts concerning the operations of addition, multiplication, subtraction and division. Students also need to understand the rules governing the operation of the computer game.

CONTENT AND STRUCTURE: ARITHMETIC RACING is a game of timed arithmetic practice for students grades 4-11. Players first select either addition, subtraction, multiplication, or division and then specify the largest number they want the computer to give them. Players also select a speed level from 1-5. The computer then assigns a point value to each problem based on these selections. A twenty-five point bonus is added to the score for answering each of the ten questions correctly.

POTENTIAL USES: The program may be used in a classroom setting to provide drill and practice in basic arithmetic operations.

MAJOR STRENGTHS: The game format offers an incentive for students needing drill and practice in arithmetic operations.

MAJOR WEAKNESSES: None cited.

Evaluation Summary

A	Content accuracy	A	Appropriate motivational level	A	Program comprehensiveness
SA	Educational value	A	Challenges student creativity	A	Adequate packaging
NA	Lacks cultural stereotyping	A	Feedback effectively employed	A	Effective information displays
A	Objectives well-defined	A	Student controls presentation of format	A	Clarity of instructions
A	Accomplishes stated objectives			A	Teacher facility with program
A	Clarity of content presentation	A	Appropriate integration with prior learning	A	Appropriate use of computer technology
A	Appropriate difficulty level				
SA	Appropriate graphics/sound/color	A	Content can be generalized	A	Program reliability

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Evaluators indicate they would use or recommend use of package with little or no change.

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Arithmetic of Functions

Program Description

PRODUCER: Math Software VERSION: © 1980 GRADES: 9-14 SUBJECT: Mathematics: Addition, Multiplication, Subtraction, Division of functions MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II or Apple II Plus with Applesoft Firmware using a disk drive with 32K of memory REQUIRED SOFTWARE: Dos 3.2 or Dos 3.3 with Basics diskette INSTRUCTIONAL TECHNIQUES: Problem solving, Demonstration DOCUMENTATION AVAILABLE: Suggested grade level(s), program operating instructions, description

INSTRUCTIONAL OBJECTIVES: To demonstrate graphically the combining of two functions using arithmetic operations and the resulting effect on the graph; to demonstrate graphically limiting processes and trigonometric identities; to enable teacher to create elaborate graphs; to illustrate functional relationships via two dimensional graphing.

INSTRUCTIONAL PREREQUISITES: The program assumes that students have good understanding and graphic knowledge about various mathematics functions including algebraic, polynomial, trigonometric and logarithmic functions; know definitions of addition, subtraction, multiplication, and division relative to specific mathematics functions. If the program is to be used to demonstrate limits, students should understand the limit concept. If the program is to be used to show trigonometric identities, students should have prior knowledge of these trigonometric identities.

CONTENT AND STRUCTURE: The program provides a display of the computer potential in function graphing. There are eight menu selections for each function followed by four choices for the operation. The menu selections generate graphic verification of certain trigonometry relationships including a double angle formula, some half-angle formulas, and some quotient relationships. The program also includes an option for user-supplied functions.

POTENTIAL USES: The program may be used effectively in a classroom to demonstrate addition, multiplication, subtraction, and division of functions.

MAJOR STRENGTHS: The program displays the graphing in different colors.

MAJOR WEAKNESSES: None cited.

Evaluation Summary

A	Content accuracy	SA	Appropriate motivational level	A	Program comprehensiveness
SA	Educational value	SA	Challenges student creativity	A	Adequate packaging
NA	Lacks cultural stereotyping	NA	Feedback effectively employed	A	Effective information displays
A	Objectives well-defined	A	Student controls presentation of format	A	Clarity of instructions
A	Accomplishes stated objectives			A	Teacher facility with program
A	Clarity of content presentation	A	Appropriate integration with prior learning	SA	Appropriate use of computer technology
A	Appropriate difficulty level				
SA	Appropriate graphics/sound/color	A	Content can be generalized	A	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of package with little or no change.

Odell I

Program Description

PRODUCER: MECC VERSION: 4.3 GRADES: 4-10 SUBJECT: Science: Biology/Food Chains MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II/disk drive/monitor (48k) REQUIRED SOFTWARE: Diskette - Science, Vol. 3 INSTRUCTIONAL TECHNIQUES: Simulation, Problem solving DOCUMENTATION AVAILABLE: Suggested grade/ability level, instructional objectives, prerequisite acitivities, sample program run, program operating instructions, teacher's guide, teacher's resource guide, student worksheets, follow-up activities.

INSTRUCTIONAL OBJECTIVES: Understand concept of food web; identify 1st, 2nd, 3rd order of consumers on web; explain role of each animal and indicate effects of man on lake and lake on man; define words related to food web.

INSTRUCTIONAL PREREQUISITES: Program assumes that students have been introduced to food chains and webs and provided with definitions of necessary terms.

CONTENT AND STRUCTURE: This is a simulation using the discovery approach. Students learn about food chains by assuming the identity of each fish in the lake and making choices about behavior.

POTENTIAL USES: Depending on student's ability and background, the program could be used in a regular or accelerated classroom with small groups of students or with the entire class.

MAJOR STRENGTHS: Students are given clear, immediate, and reinforcing feedback. Simulation activities appropriately involve students.

MAJOR WEAKNESSES: The vocabulary is above the fourth grade level. The shape of the fish do not vary with name making it difficult to distinguish among them. The manual should contain an answer key and more complete instructions to teachers.

Evaluation Summary

A	Content accuracy	SA	Appropriate motivational level	A	Program comprehensiveness
SA	Educational value	D	Challenges student creativity	A	Adequate packaging
SA	Lacks cultural stereotyping	A	Feedback effectively employed	A	Effective information displays
SA	Objectives well-defined	A	Student controls presentation of format	A	Clarity of instructions
A	Accomplishes stated objectives			A	Teacher facility with program
SA	Clarity of content presentation	A	Appropriate integration with prior learning	A	Appropriate use of computer technology
A	Appropriate difficulty level				
A	Appropriate graphics/sound/color	A	Content can be generalized	A	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of package only if certain changes were made (Note Major Weaknesses).

Mathematics Drill and Practice

Program Description

PRODUCER: COMPAK, Inc. VERSION: Apple II GRADES: 1-8 SUBJECT: Math: Addition, Subtraction, Multiplication, Division, Fractions, Decimals, Measurement Geometry, Percents, Elementary Algebra MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II (48K), disk drive, monitor, printer helpful for hard copy of student progress records REQUIRED SOFTWARE: Dos 3.2 INSTRUCTIONAL TECHNIQUES: Drill and Practice, Tutorial, Learning Management DOCUMENTATION AVAILABLE: Suggested grade/ability level, instructional objectives, program operating instructions, teacher's guide

INSTRUCTIONAL OBJECTIVES: Using a variety of teaching techniques, augment math instruction and improve student achievement; provide individual student math skills assessment and meet individual learning needs.

INSTRUCTIONAL PREREQUISITES: The program is not designed for totally independent study; students need access to supervision, instruction, and feedback. Students must have a general understanding of microcomputer operations and be able to read above the primary level.

CONTENT AND STRUCTURE: The package contains 14 diskettes covering mathematics concepts taught in grades 1-8. The type of instruction varies from drill and practice to introduction and development of math ideas. Package contents according to grade levels include: grades 1-8: addition, subtraction, multiplication, division, common fractions, measurement, geometry, elementary algebra; grades 4-8: decimal fractions; grades 6-8: percents.

POTENTIAL USES: The package is appropriate for use in a learning resource center where students may be scheduled for drill and practice in a specific skill area.

MAJOR STRENGTHS: The package covers basic mathematics concepts and includes a mangement system that is easy for teachers to use.

MAJOR WEAKNESSES: Each skill area does not contain enough problems to be considered an adequate drill and practice and thus precludes students from attaining mastery in a specific math concept. Sample problems are not provided for students advancing to higher skill levels. Word problems are not included in any of the skill areas. The package does not provide an adequate pre-test assessment of skill deficiencies; as written, the program must be entered by trial and error. At the lower levels of computation drill in addition, subtraction, and multiplication, the configuration of the problems does not show regrouping or renaming, students are unable to graphically see the necessary sequence of steps to complete a problem.

Evaluation Summary

A	Content accuracy	D	Appropriate motivational level	SD	Program comprehensiveness
A	Educational value	NA	Challenges student creativity	D	Adequate packaging
SA	Lacks cultural stereotyping	D	Feedback effectively employed	A	Effective information displays
A	Objectives well-defined	A	Student controls presentation of format	D	Clarity of instructions
D	Accomplishes stated objectives			A	Teacher facility with program
D	Clarity of content presentation	A	Appropriate integration with prior learning	A	Appropriate use of computer technology
D	Appropriate difficulty level				
A	Appropriate graphics/sound/color	A	Content can be generalized	A	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of this package only if certain changes were made (Note Major Weaknesses).

Typing Tutor

Program Description

PRODUCER: Microsoft VERSION: Apple II/Radio Shack TRS-80 GRADES: 8-12 SUBJECT: Business Education: Typing MEDIUM OF TRANSFER: Tape Cassette, 5" Flex. Disk REQUIRED HARDWARE: Apple 16K, Integer Basic, B/W Monitor; TRS-80 Model I-16K; Level II Basic REQUIRED SOFTWARE: Integer Basic on Apple, Level II Basic on TRS-80. INSTRUCTIONAL TECHNIQUES: Drill and Practice, Simulation DOCUMENTATION AVAILABLE: Instructional objectives, program operating instructions, teacher's guide

INSTRUCTIONAL OBJECTIVES: Teach students how to type; increase typing speed and efficiency.

INSTRUCTIONAL PREREQUISITES: None cited.

CONTENT AND STRUCTURE: Package consists of one program that uses drill and practice to teach beginners how to use the standard typewriter keyboard. Paragraph typing exercises are used throughout the activity.

POTENTIAL USES: The program may be used effectively as a refresher typing course for students who need to increase speed and efficiency. It may also be used as a learning station in a regular classroom.

MAJOR STRENGTHS: The program is easy for students to use and provides non-threatening feedback. Computer terms are introduced as part of the typing exercises. Students can expect to learn the keyboard with moderate proficiency. Speed in WPM is introduced and developed early in the program.

MAJOR WEAKNESSES: The program manual is incomplete. The use of nonsense syllables in typing exercises is not necessary; words are more appropriate for students to type. Students will have difficulty making symbol and key transition from computer keyboard to regular typewriter. The documentation needs more illustrations showing how the fingers strike the various keys. In addition, documentation is not explicit about how to exit program. Teaching eight characters per learning exercise is not enough; a minimum of 16 is necessary to ensure development of a stroking pattern. Students should not be penalized if they leave space at the end of a line. The program is inadequate for acquiring comprehensive typing proficiency; program lacks other important typing skills, e.g., letter forms, tab settings, centering.

Evaluation Summary

SA	Content accuracy	D	Appropriate motivational level	SD	Program comprehensiveness
SA	Educational value	A	Challenges student creativity	D	Adequate packaging
NA	Lacks cultural stereotyping	SA	Feedback effectively employed	A	Effective information displays
SA	Objectives well-defined	SA	Student controls presentation of format	D	Clarity of instructions
D	Accomplishes stated objectives			A	Teacher facility with program
A	Clarity of content presentation	NA	Appropriate integration with prior learning	A	Appropriate use of computer technology
SA	Appropriate difficulty level				
NA	Appropriate graphics/sound/color	D	Content can be generalized	SA	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of this package only if certain changes were made (Note Major Weaknesses).

Math Sequences

Program Description

PRODUCER: Milliken Publishing Company VERSION: Apple II, Revised (TRS-80 and PET available) GRADES: 1-8 SUBJECT: Math: All elementary topics MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II or with Applesoft ROM 48K RAM, disk drive, monitor REQUIRED SOFTWARE: Applesoft, Dos 3.2 or 3.3 INSTRUCTIONAL TECHNIQUES: Drill and Practice DOCUMENTATION AVAILABLE: Suggested grade/ability level, sample progam output, program operating instructions, teacher's information, resource/reference information, relationship to standard textbooks, ditto masters for student record keeping

INSTRUCTIONAL OBJECTIVES: Standard elementary math.

INSTRUCTIONAL PREREQUISITES: Package assumes math concepts have been taught. Student begins program at existing skill level.

CONTENT AND STUCTURE: The package consists of 12 diskettes in a 3-ring binder, a teacher's guide, duplicating masters for student record forms, and an instruction card. An optional automated instructional management system is included. The system provides drill and practice in standard elementary math topics including number readiness, basic operations, laws of arithmetic, fractions, decimals, percent, equations, and measurement formulas.

POTENTIAL USES: The package is designed to augment math instruction in an elementary classroom, lab or resource room. It may be used effectively with individuals or small groups. In grades 1-6 the package is appropriate for remediation, enrichment or on-level instruction; in grades 7-8 it may be used for on-level or remediation; at grade 9, for remediation only. Students may use the package independently with minimal training.

MAJOR STRENGTHS: The system is easy for students and teachers to use. Formating and presentation of instructional material is appropriate for skill levels taught. Student progress is governed by mastery and automatically adjusted. Inclusion of an optional automated instructional management system is an asset for teachers.

MAJOR WEAKNESSES: Students may have difficulty starting a session because habitual use of return key between response to name, class, and level, results in return to the beginning of the program. Management system lacks instruction and examples for easy classroom implementation.

Evaluation Summary

SA	Content accuracy	SA	Appropriate motivational level	A	Program comprehensiveness
SA	Educational value	D	Challenges student creativity		Adequate packaging
SA	Lacks cultural stereotyping	A	Feedback effectively employed	SA	Effective information displays
A	Objectives well-defined	A	Student controls presentation of format	A	Clarity of instructions
A	Accomplishes stated objectives			A	Teacher facility with program
SA	Clarity of content presentation	A	Appropriate integration with prior learning	A	Appropriate use of computer technology
SA	Appropriate difficulty level				
SA	Appropriate graphics/sound/color	A	Content can be generalized	SA	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of this package with little or no change.

Circulation (Organs)

Program Description

PRODUCER: Micro Power and Light Company VERSION: N/A GRADES: 5-12 SUBJECT: Science: Human Circulatory System MEDIUM OF TRANSFER: 5" Flex. Disk REQUIRED HARDWARE: Apple II Plus, 32K, single disk drive, color monitor REQUIRED SOFTWARE: Applesoft, Dos 3.2 INSTRUCTIONAL TECHNIQUES: Drill and Practice, Tutorial, Game DOCUMENTATION AVAILABLE: Suggested grade/ability level, instructional objectives, program operating instructions, teacher's information

INSTRUCTIONAL OBJECTIVES: To teach the functions of the organs of the circulatory system.

INSTRUCTIONAL PREREQUISITES: Teacher should go through the instructional cycle with the student prior to using. Requires a third grade reading ability and some instruction in health or science at grades 3 or 4.

CONTENT AND STRUCTURE: The program teaches the functions of the heart, blood, arteries, capillaries, veins, and lungs. The student has a choice of three instructional modes: tutorials with animated sequences, true-false quizzes, and car race games using true-false questions and a time limit. Tutorial sequences are short and provide opportunities for the user to review the animations which are used to illustrate specific concepts. Tutorials include quizzes on previous lessons.

POTENTIAL USES: The program could be used to review science or health related topics, or for free time enrichment. It may also be used effectively as a resource center activity where students rotate through stations or it could be the focus of a class exercise with teams competing for points.

MAJOR STRENGTHS: Computer responses are "friendly." Correct answer is given if student gives an incorrect answer. The program is designed for easy entry and exit. The student can bypass previously studied material. There is plenty of opportunity for review. User controls rate of learning. Content is segmented into small units.

MAJOR WEAKNESSES: Use of blue color to represent lungs and cells that have received oxygen deviates from the usual color scheme. The option for students to play a game without going first to an instructional mode is presented too early. Students tend to go directly to the game option, later finding they cannot be successful if they skipped the instruction section.

Evaluation Summary

A	Content accuracy	A	Appropriate motivational level	A	Program comprehensiveness
SA	Educational value	A	Challenges student creativity	A	Adequate packaging
SA	Lacks cultural stereotyping	SA	Feedback effectively employed	A	Effective information displays
A	Objectives well-defined	SA	Student controls presentation of format	SA	Clarity of instructions
A	Accomplishes stated objectives			SA	Teacher facility with program
A	Clarity of content presentation	A	Appropriate integration with prior learning	A	Appropriate use of computer technology
A	Appropriate difficulty level				
A	Appropriate graphics/sound/color	A	Content can be generalized	SA	Program reliability

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not Applicable

Evaluators indicate they would use or recommend use of this package with little or no change.

Microcomputer Software Catalogue List

The following commercially produced catalogues contain sources and sometimes evaluations of microcomputer software. No endorsement of quality is implied by entry on this list. Address and cost information may change over time.

I. General Catalogues--Educational Applications

Name: Education Software Directory (Apple II Edition)
Source: Sterling Swift Publishing Co.
P.O. Box 188
Manchaca, TX 78652
Cost: $9.95 (education price)

Name: School MicroWare
Source: Dresden Associates
P.O. Box 246
Dresden, ME 04342
Cost: $20/year (includes updates)

Name: MARCK No 2
Source: MARCK 280 Linden Avenue
Branford, CT 06405
Cost: $4.95

Name: Queue Catalog No. 4
Source: Queue
5 Chapel Hill Drive
Fairfield, CT 06432
Cost: $8.95 single issue

Name: Selected Microcomputer Software
Source: Opportunities for Learning, Inc.
8950 Lurline Avenue
Chatsworth, CA 91311
Cost: Free

Name: Scholastic Microcomputer Instructional Materials
Source: Scholastic Inc.
904 Sylvan Avenue
Englewood Cliffs, NJ 07632
Cost: Free (Moneyback quarantee on software)

Name: K-12 MicroMedia
Source: P.O. Box 17
Valley Cottage, N.Y. 10989
Cost: Free (30 day moneyback quarantee on software)

II. General Catalogues--Several Fields

These catalogues list software for many fields including education, from a variety of vendors.

Name: Radio Shack TRS-80 Applications Software Sourcebook
Source: Radio Shack
Box 17400
Fort Worth, TX 76102
(Available in Radio Shack computer shops)
Cost: $1

Name: TRS-80 Software Source
Source: COMPUTERMAT
P.O. Box 1664
Lake Havasu City,
AZ 86403
Cost: $6/issue; $15/year

Name: 80 Software Critique
Source: RWC Microcomputing Services
P.O. Box 134
El Dorado, CA 95623
Cost: $7/issue; $24/yr

Name: Atari Program Exchange
Source: Atari Inc.
P.O. Box 427
155 Moffett Park Drive
Sunnyvale, CA 94086
Cost: $1/issue